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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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20575	7590	08/11/2005	EXAMINER	
MARGER JOHNSON & MCCOLLOM, P.C. 210 SW MORRISON STREET, SUITE 400 PORTLAND, OR 97204			HARPER, V PAUL	
			ART UNIT	PAPER NUMBER
			2654	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/044,800	Applicant(s) BEAUCOUP ET AL.	
	Examiner V. Paul Harper	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the references listed in the Information Disclosure Statements dated 1/10/02, 5/15/02, and 8/29/03. Copies of the Information Disclosure Statements are attached to this office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 18, the limitations beginning "a first voice activity detector" and "a second voice activity detector" both end with the phrase "and in response disabling said first and second noise level estimators." The closest teachings in the specification appear to be (p. 4, lines 7-9) "[w]henver a controlling VAD's output indicates a 'voiced' segment in the signal the noise level calculation in a controlled NLE block is disabled (i.e., the NLE is 'frozen'), indicating that only a single noise estimator is disabled.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear which "said audio signal activity" is being referred to, that of claim 7 or claim 8.

4. In view of the above 112 1st and 2nd rejections, the following rejections are done giving the best interpretation to the claims in view of art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Akira et al. (Japanese Patent Application Publication JP 2000305579), hereinafter referred to as Akira.

Regarding **claim 1**, Akira discloses a speech detecting device which includes the following:

- [a] noise characteristic estimation of a signal of interest transmitted in a first direction (Fig. 1, Pn background-noise power of the signal from the microphone, ¶[0012]), the improvement comprising
 - detecting audio signal activity in a signal transmitted in a direction opposite to said signal of interest and in response ceasing said noise characteristic estimation (Fig. 1, ¶[0012], VS turns off the Pn circuit if received signal in a talk state).

Regarding **claim 2**, Akira teaches everything claimed, as applied above (see claim 1). In addition, Akira teaches “detecting audio signal activity in said signal of interest and in response ceasing said noise characteristic estimation” (¶[0012] the voice switch after detecting a talk state on the receive line turned off the background-noise power presumption, Fig. 1, switch at item 4 opened).

Regarding **claim 3**, Akira teaches everything claimed, as applied above (see claim 2). In addition, Akira teaches “said noise characteristic is noise level” (¶[0008], Fig. 1, item 2 background-noise power).

Regarding **claim 4**, Akira teaches everything claimed, as applied above (see claim 1). In addition, Akira teaches “said noise characteristic is noise level” (¶[0008], Fig. 1, item 2 background-noise power).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akira in view of Cesaro et al. (U.S. Patent 5,533,118), hereinafter referred to as Cesaro.

Regarding **claim 5**, Akira teaches everything claimed, as applied above (see claim 1), but Akira does not specifically teach "said audio signal activity comprises at least voice activity and in-band tone activity." However, the examiner contends that this concept was well known in the art, as taught by Cesaro.

In the same field of endeavor, Cesaro discloses a voice activity detection method that is responsive to both voice and tones (abstract, col. 2, lines 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing the features, as taught by Cesaro, because it is well known in the art at the time of invention for the purpose of simple and effective detection of both voice and tones on a telephone line (Cesaro, col. 1, lines 14-19, lines 64-68; col. 2, lines 45-50).

Regarding **claim 6**, this claim has limitations similar to claim 5 and is rejected for the same reasons.

Regarding **claim 7**, Akira discloses a speech detecting device which includes the following:

- a noise characteristic estimator for estimating a noise characteristic of a signal of interest transmitted in a first direction through said conferencing system (Fig. 1, Pn background-noise power of the signal from the microphone, ¶[0012]); and
- a first [audio] activity detector for detecting audio signal activity in a signal transmitted through said conferencing system in a direction opposite to said signal of interest and in response disabling said noise characteristic estimator (Fig. 1, ¶[0012], VS turns off the Pn circuit if received signal in a talk state).

But Akira does not specifically teach “a first **voice** activity detector ...”. However, the examiner contends that this concept was well known in the art, as taught by Cesaro.

In the same field of endeavor, Cesaro discloses a voice activity detection method that is responsive to voice (abstract; col. 2, lines 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing the features, as taught by Cesaro, because it is well known in the art at the time of invention for the purpose of simple and effective detection of voice on a telephone line (Cesaro, col. 1, lines 14-19; col. 2, lines 45-50).

Regarding **claim 9**, Akira in view of Cesaro teaches everything claimed, as applied above (see claim 7). In addition, Akira teaches "said noise characteristic is noise level (Π [0008], Fig. 1, item 2 background-noise power).

Regarding **claim 11**, Akira in view of Cesaro teaches everything claimed, as applied above (see claim 7). But Akira does not specifically teach "said audio signal activity comprises at least voice activity and in-band tone activity." However, the examiner contends that this concept was well known in the art, as taught by Cesaro.

Cesaro further discloses a voice activity detection method that is responsive to tones (abstract, col. 2, lines 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing the features, as taught by Cesaro, because it is well known in the art at the time of invention for the purpose of simple and effective detection of both voice and tones on a telephone line where the detection of tone is a common occurrence (Cesaro, col. 1, lines 14-19, lines 64-68; col. 2, lines 45-50).

6. Claims 8, 10, 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akira in view of Cesaro and further in view of Lindgren et al. (U.S. Patent 6,597,787), hereinafter referred to as Lindgren.

Regarding **claim 8**, Akira in view of Cesaro teaches everything claimed, as applied above (see claim 7). But Akira does not specifically teach “a second voice activity detector for detecting audio signal activity in said signal of interest and in response disabling said noise characteristic estimator.” However, the examiner contends that this concept was well known in the art, as taught by Lindgren.

In the same field of endeavor, Lindgren discloses an echo cancellation device that uses a voice activity detector during noise calculations and disables the noise calculation during speech (col. 18, lines 52-62; Fig. 5B). It is also noted that this feature is indicated as prior art in the specification (p. 3, lines 11-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira in view of Cesaro by specifically providing the features, as taught by Lindgren, because it is well known in the art at the time of invention for the purpose of performing an accurate background noise calculation when there is no speech present.

Regarding **claim 10**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 8). Furthermore, Lindgren teaches that “said noise characteristic is noise level” (col. 18, lines 55-65, a model is created for background noise; it is also noted that the specification teaches as prior art that “only segments of free speech are used to update the noise level calculation” p. 3, lines 12-17).

Regarding **claim 12**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 8). But Akira does not specifically teach “said audio signal activity [in the signal of interest, see 112 2nd rejection] comprises at least voice activity and in-band tone activity.” However, the examiner contends that this concept was well known in the art, as taught by Cesaro.

Cesaro further discloses a voice activity detection method that is responsive to tones (abstract, col. 2, lines 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing the features, as taught by Cesaro, because it is well known in the art at the time of invention for the purpose of simple and effective detection of both voice and tones on a telephone line where the detection of tone is a common occurrence (Cesaro, col. 1, lines 14-19, lines 64-68; col. 2, lines 45-50).

Regarding **claim 13**, Akira discloses a speech detecting device which includes the following:

- a line input for receiving a line-in audio signal from an audio signal line (Fig. 1, line leading to the speaker, item 11);
- a line output for transmitting a line-out audio signal to said audio line (Fig. 1, line from the microphone, item 10);
- a speaker connected to said line input for broadcasting said line-in audio signal (Fig. 1, item 10);

- a microphone connected to said line output for applying said line-out audio signal to said line output (Fig. 1, item 11);
- at least one noise level estimator for estimating noise level in one of either said line-in audio signal or said line-out audio signal (Fig. 1, item 2); and
- at least one [audio] activity detector for detecting [audio] activity in the other of said line-in audio signal or said line-out audio signal and in response disabling said at least one noise level estimator (Fig. 1, item 14; ¶[0012], VS turns off the Pn circuit if received signal in a talk state).

But Akira does not specifically teach “at least one **voice** activity detector for detecting **voice** activity ...”. However, the examiner contends that this concept was well known in the art, as taught by Cesaro.

In the same field of endeavor, Cesaro discloses a voice activity detection method that is responsive to voice (abstract, col. 2, lines 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing the features, as taught by Cesaro, because it is well known in the art at the time of invention for the purpose of simple and effective detection of voice on a telephone line (Cesaro, col. 1, lines 14-19; col. 2, lines 45-50).

Furthermore, Akira does not specifically teach “an echo canceller connected to said line input and said line output for canceling echo signals of said line-in audio signal appearing in said line-out audio signal.” However, the examiner contends that this concept was well known in the art, as taught by Lindgren.

In the same field of endeavor, Lindgren discloses an echo cancellation device for canceling echoes in a transceiver (abstract, col. 1, lines 10-19). It is also noted that the specification indicates that the use of an echo canceller is well known in the art (p. 3, line 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira by specifically providing features, as taught by Lindgren, because it is well known in the art at the time of invention for the purpose of eliminating residual echoes in the transmitting path (Lindgren, col. 1, lines 20-23).

Regarding **claim 14**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 13). But Akira does not specifically teach "a further voice activity detector for detecting voice activity in said one of said line-in audio signal or said line-out audio signal and in response disabling said at least one noise level estimator." However, the examiner contends that this concept was well known in the art, as taught by Lindgren.

Lindgren further discloses an echo cancellation device that uses a voice activity detector during noise calculations and disables the noise calculation during speech (col. 18, lines 52-62; Fig. 5B). It is also noted that this feature is indicated as prior art in the specification (p. 3, lines 11-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira in view of Cesaro by specifically

Art Unit: 2654

providing the features, as taught by Lindgren, because it is well known in the art at the time of invention for the purpose of performing an accurate background noise calculation when there is no speech present.

Regarding **claim 16**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 14). In addition, Akira in view of Cesaro and Lindgren teaches "wherein said at least one voice activity detector is connected to said line input, and said further voice activity detector is connected to said line output and said echo canceller" (this is the configuration taught by the art in the rejection of claims 13 and 14; voice activity detector connected to line input; Akira, Fig. 1, items 14 and 11; and Cesaro teaches the use of a [different] voice activity detector connected to the line where the noise is being measured--the line output).

7. Claims 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akira in view of Cesaro and Lindgren and further in view of Terada et al. (U.S. Patent 6,861,591), hereinafter referred to as Terada.

Regarding **claim 15**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 14). Akira in view of Cesaro and Lindgren teaches a particular configuration of voice activity detectors (see rejection of claim 16), but Akira in view of Cesaro and Lindgren does not specifically teach "said at least one voice activity detector is connected to said line-output and said echo canceller, and said

further voice activity detector is connected to said line input." However, the examiner contends that this concept was well known in the art, as taught by Terada.

Terada discloses a voice switching system that uses a symmetric configuration of voice detecting and noise estimating circuits (Figs. 1, 3 and 5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Akira in view of Cesaro and Lindgren by specifically providing both configurations, as taught by Lindgren, because it is well known in the art at the time of invention that such a configuration provides improved voice switching for removing echoes and reducing howling (Terada, col. 1, lines 7-13).

Regarding **claim 17**, Akira in view of Cesaro and Lindgren teaches everything claimed, as applied above (see claim 13). But Akira does not specifically teach "said at least one voice activity detector is connected to said microphone and said echo canceller." However this configuration is discussed in the rejections of claims 14 and 15.

Regarding **claim 18**, (see 112 1st rejection, above; in view of this rejection) this claim has limitations similar to limitations in claims 13-17 and is rejected for the same reasons.

Citation of Pertinent Art

8. The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

- Urbanski (U.S. Patent 5,696,821) discloses a radiotelephone and method therefor for substantially reducing audio feedback.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/05/2005

V. Paul Harper
Patent Examiner
Art Unit 2654

